1,29. (Four Times Amended) A method of producing a solar cell comprising the steps of:

forming a porous layer in a surface region of a first substrate;

forming a first semiconductor layer on the porous layer by liquid phase epitaxy under a reducing atmosphere;

forming a second semiconductor layer on the first semiconductor layer by liquid phase epitaxy;

bonding the first substrate to a second substrate to obtain a multiple layer structure with the second semiconductor layer positioned inside; and

separating the first substrate from the multiple layer structure by utilizing the porous layer to transfer the first and second semiconductor layers to the second substrate;

wherein in the liquid phase epitaxy used to form the first semiconductor layer, a melting solution in which elements for forming the first semiconductor layer are dissolved up to a desired concentration, which is the same as or below saturated concentration, is brought into contact with a surface of the porous layer which is annealed under a reducing atmosphere in advance, while a surface temperature of the porous layer is made lower than a temperature at which elements in the melting solution having the desired concentration are saturated by at least 5 degrees Celsius.

52 to 56. Cancelled.

19.

57. (Twice Amended) A method of producing a semiconductor member comprising the steps of:

(a) forming a porous layer in a surface region of a first substrate;

(b-1) immersing, into a melting solution in which elements for forming a first semiconductor layer to be grown are dissolved up to a desired concentration, which is the same as or below saturated concentration, the porous layer, whose surface temperature is made lower than a temperature at which the melting solution having the desired concentration is saturated by at least 5 degrees Celsius, under a reducing atmosphere to grow the first semiconductor layer on a surface of the porous layer;

(b-2) forming a second semiconductor layer on the first semiconductor layer by liquid phase epitaxy;

(c) bonding a second substrate onto a surface side of the first substrate on which at least the porous layer and the first semiconductor layer are formed; and

(d) separating the first substrate from the second substrate at the porous layer to transfer the first and second semiconductor layers separated from the first substrate to the second substrate.

20.

58. (Unamended From Previous Version) A method of producing a semiconductor member according to claim 19, wherein a surface of the first substrate separated in the step (d) is treated and then again subjected to the step (a) as the first substrate.

23. 59. (Unamended From Previous Version) A method of producing a semiconductor member according to claim 58, wherein after the surface of the first substrate separated in the step (d) is treated and before it is again subjected to the step (a), a semiconductor layer into which an impurity is introduced by liquid phase growth is allowed to grow on the surface of the first substrate.

22. 60. (Unamended From Previous Version) A method of producing a semiconductor member according to claim 59, wherein after the surface of the first substrate in the step (d) is treated and prior to the growth of the semiconductor layer into which the impurity is introduced, a semiconductor layer into which no impurity is introduced or into which an impurity is introduced with a small concentration is formed on the surface of the first substrate.

23. 61. (Unamended From Previous Version) A method of producing a semiconductor member according to claim 59, wherein a semiconductor having a purity of 99.99% or less is used as the first substrate.

62 to 64. Cancelled.

24. 65. (Unamended From Previous Version) A method of producing a semiconductor member according to claim 57, wherein the first substrate is crystalline.

66. (Unamended From Previous Version) A method of producing a semiconductor member according to claim 57, wherein the first substrate is made of silicon single-crystal.

67. (Unamended From Previous Version) A method of producing a solar cell, comprising a step of using the semiconductor layers transferred to the second substrate which are obtained by the method of claim 57.

82. Cancelled.

83. Cancelled.

85. Cancelled.

86. Cancelled.

88. (Unamended From Previous Version) A method according to claim 29, further comprising a step of removing the porous layer remaining on the surface of the first substrate after the first substrate is separated from the transferred semiconductor layers.

94. (Unamended From Previous Version) A method according to claim 29, wherein the bonding step of the second substrate is conducted using an adhesive.

95. (Unamended From Previous Version) A method according to claim 94, wherein the adhesive includes a water-soluble adhesive.

97. (Unamended From Previous Version) A method according to claim 29, further comprising a step of separating the second substrate to transfer the semiconductor layers onto a third substrate.

98. (Unamended From Previous Version) A method according to claim 29, wherein the second substrate has a water permeability.

99. (Unamended From Previous Version) A method according to claim 97, wherein the separation of the second substrate is conducted by the deterioration of adhesion of the adhesive used for bonding of the second substrate.

100. (Unamended From Previous Version) A method according to claim 99, wherein the deterioration of the adhesion is conducted by a liquid that has passed through the second substrate.

101. (Unamended From Previous Version) A method according to claim 99, wherein the adhesive is water-soluble, and the deterioration of the adhesion is conducted by a water that permeates the second substrate.

102. (Unamended From Previous Version) A method according to claim 29, wherein an impurity in the porous layer is diffused into the first semiconductor layer.

103. (Unamended From Previous Version) A method according to claim 29, wherein the liquid phase epitaxy for forming the first semiconductor layer is conducted with indium as a solvent.

104. (Unamended From Previous Version) A method according to claim 29, wherein before the bonding of the second substrate, an impurity is introduced into one or both the semiconductor layers.

105. (Unamended From Previous Version) A method according to claim 29, wherein before the bonding of the second substrate, an impurity is introduced into one or both of the semiconductor layers to form a p-n junction.

106. (Unamended From Previous Version) A method according to claim 29, wherein the second substrate has an electroconductive surface.

107. (Unamended From Previous Version) A method according to claim 29, further comprising a step of removing the porous layer remaining on the transferred first semiconductor layer.

108. (Unamended From Previous Version) A method according to claim 29, further comprising a step of forming an electrode on the transferred semiconductor layers.

109. (Unamended From Previous Version) A method according to claim 29, further comprising a step of introducing an impurity into one or both of the transferred semiconductor layers.

110. (Unamended From Previous Version) A method according to claim 29, further comprising a step of forming a semiconductor layer containing an impurity on the transferred semiconductor layers.

REMARKS

This application has been carefully reviewed in light of the Office Action dated October 4, 2002 (Paper No. 15). Claims 29, 57 to 61, 65 to 67, 88, 94, 95 and 97 to 110 are in the application, of which Claims 29 and 57 are the independent claims. Reconsideration and further examination are respectfully requested.

Claims 82, 83, 85 and 86, which had been withdrawn from consideration pursuant to a constructive election, have been cancelled without prejudice to Applicants' right to present these claims in a later-filed division.

Claims 52 to 56 and 62 to 64 were rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 5,536,361 (Kondo), U.S. Patent No. 5,811,348 (Yonehara), U.S. Patent No. 5,277,748 (Sakaguchi '748) or U.S. Patent No. 5,492,859 (Sakaguchi '859) in view of